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Synopsis of the PARNIDÆ of the United States.

BY GEO. H. HORN, M. D.

It is now nearly eighteen years since the publication of the synopsis of this family by Dr. Leconte (*Proc. Acad.*, Feb. 1852). In the meantime a number of species have been added to the list, while many others from California and adjacent regions, collected by myself, remain without names. The object of the present paper is to bring before the American student a complete list of our species with sufficiently detailed descriptions to enable them to be readily determined. Several errors in family characters, copied from one author to another, have been detected and will be mentioned in their proper places.

Among the species described from California, etc., will be found several genera not before known from the western slope, enough to warrant the belief that those regions are, at least, as well supplied as the Atlantic slope. The dearth of species from our Southern States is remarkable and is the result, probably, of a want of thorough exploration rather than a real absence.

Fully coinciding in the views of Dr. Leconte, the following sub-families are adopted:

Abdomen with more than five segments.....**Psephenidæ.**
Abdomen with five segments only:
Anterior coxæ transverse; trochantin distinct.....**Parnidæ.**
Anterior coxæ rounded; trochantin invisible.....**Elmidæ.**

Sub-Family PSEPHENIDÆ.

The characters of this sub-family have been so fully given by Dr. Leconte (loc. cit. and *Class Col. N. A.* p. 115) that it is not necessary to enter into details here. Two errors, however, need correction.

In examining the specimens in my cabinet I was unable for a long time to detect the sixth segment spoken of by Dr. Leconte, which shows itself on each side only, between the fifth and seventh segments; those in the cabinet of Dr. Leconte exhibited the additional segments very plainly. Dissection indicates that those with six segments only are females, while the males have an additional segment between the last and the fifth. Accompanying this are certain antennal differences not before noticed. The antennæ of the male are distinctly *sub-serrate* and the last joint at least *one half longer* than the preceding, those of the female are almost *moniliform* and the last joint *not longer* than the preceding. The hind coxæ are said to be contiguous (*Proc. Acad.* 1852, p. 41, and *Class Col. N. A.* p. 115), this I find not to be the case either in this sub-family or the next, at least, so far as our genera are concerned.

PSEPHENUS, Hald.

Psephenus Hald. Melsheimer Catalogue, p. 34.
Eurypalpus. Lec. Proc. Acad. 1852, p. 41.

P. Lecontei, Lec. (*Eurypalpus*) loc. cit; *trentonensis* Zimm. Trans. Ent. Soc. 1869, p. 259.

The male has the thorax much less opaque than the female, sometimes brownish black in color, in the latter sex the thorax is always deep black and without lustre; the elytra vary in color from black to brownish. The *P. trentonensis*, Zimm., is not distinct from the other, and Dr. Leconte informs me that he published the description of Dr. Zimmerman's in deference only to the very positive opinion of its author, having doubts in his own mind of its being distinct. Length .18.—24 inch; 4.5—6 mm.

Occurs abundantly at Niagara and Trenton Falls, and specimens have been received from Illinois, Rhode Island and Pennsylvania.

P. Haldemani, n. sp.

Similar to *Lecontei* and differs in being more depressed and with less distinctly punctured elytra the bases of which have a brownish testaceous space extending from the humeri to the suture, where it is broader. The head, instead of being concave, as in the preceding species, has two impressions, as if the cavity in the preceding species were divided by a longitudinal obtuse ridge. The femora are yellowish and the tibiæ and tarsi brownish.

Length .15 inch; 3.75 mm.

Two females from the Peninsula of California, collected by Mr. Gabb.

Sub-Family PARNIDÆ.

Two tribes form this sub-family.

Head not entirely retractile, free beneath.....**Larini.**
Head retractile, protected beneath by prosternal lobe.....**Parnini.**

Tribe I.—*Larini.*

Two genera are included in this tribe, one of which is Californian, the other European.

LARA, Lec.

Lara, Lec. Proc. Acad. 1852, p. 42.

L. avara, Lec. loc. cit.

Sufficiently detailed generic and specific descriptions have been given by Leconte (loc. cit. and *Class Col. N. A.*, p. 116), and it is unnecessary to add anything further. Length .30 inch; 7.5 mm.

From the circumstances attending the reception of this insect I am inclined to believe that the high mountain regions of the upper Sacra-

mento Valley form the habitat of this insect. I am quite certain that I saw a living specimen adhering to a log under water in a swift stream near Fort Crook.

Tribe II.—*Parnini.*

Three genera only represent this tribe in our fauna, distinguished as follows:

Body rounded; eyes not hairy.
 Antennæ distant; second joint large; last joint of maxillary palpi securiform.....**Lutrochus.**
Body elongate.
 Antennæ approximate; eyes hairy; last joint of maxillary palpi elongate.....**Pelonomus.**
 Antennæ distant; eyes glabrous; last joint of maxillary palpi elongate.....**Helichus.**

An examination of all the genera of this tribe has shown me that the hind coxæ are very distinctly separated, and cannot be called subcontiguous, even in *Parnus*, as has been done by Lacordaire, (Genera II, p. 504). The genus *Lutrochus* may be known by the form of the epipleuræ which are suddenly lobed in front. The second antennal joint is large in *Helichus* and small in *Pelonomus*. All have the outer joints of the antennæ (4–11) distinctly lamellate, with the joints not greatly varying in size either in length or width.

LUTROCHUS, Erichs.

Lutrochus, Erichs. Ins. Deutsch. III, p. 509.

L. luteus, Lec. Proc. Acad. 1852, p. 42.

A small, oval insect densely clothed with luteous hair and with an æneous tinge. Length .12 inch; 3 mm.

Fort Gates, and McLennan Co., Texas, Belfrage.

PELONOMUS, Erichs.

Pelonomus, Erichs. Ins. Deutsch. III, 510.

Resembles in form the European *Parnus*, but may be easily known superficially by the absence of any lateral thoracic grooves.

P. obscurus, Lec. Proc. Acad. 1852, p. 42.

Length .26 inch; 6.5 mm. Occurs in the Southern and Western States.

HELICHUS, Erichs.

Helichus, Erichs. Ins. Deutsch. III, p. 510.

A careful examination, especially of the larger species of the genus shows the tibial spurs to be quite distinct.

Our species may be distinguished as follows:

Last abdominal segment densely pubescent:
 Spurs of tibiæ quite distinct but small.....**productus.**

Last abdominal segment nearly nude, frequently ferruginous in color:
- Body finely and evenly, sericeous pubescent.....**lithophilus.**
- Body coarsely pubescent.*
 - Basal thoracic region and sutural space glabrous.....**fastigiatus.**
 - Surface everywhere pubescent.
 - Alternate interspaces more convex.....**striatus.**
 - Interspaces flat.....**suturalis.**

H. productus, Lec. Proc. Acad. 1852, p. 43.

Our largest species, easily known by the last segment of the abdomen being as densely coated with scaly hairs as the other segments. The thorax is nearly square in the males and broader than long in the females; surface rather coarsely punctured and sparsely pubescent. Elytra elongate, subparallel on the sides, striæ firmly impressed, with not large punctures, surface more densely pubescent on the sides. The sutural space, which becomes wider behind, is less densely pubescent, and the hairs are finer, more silken and more easily removed. In this and the other California species the surface becomes coated with a whitish material, so thick and dense as almost completely to hide the pubescence. This is especially the case in those specimens found in streams the waters of which are strongly impregnated with earthy salts, and in specimens taken near the end of the season the legs have been found so completely covered with this incrustation as almost to interfere with their motion. Length .24—.32 inch; 6—8 mm.

This species is widely distributed occurring from near Santa Barbara, in the Coast Range, to Tejon, thence in the streams to Yuma, and, in places, along the Gila and San Pedro Rivers, of Arizona, as far as Camp Grant. The original specimens were found at San Diego and Mr. Gabb brought others from the Peninsula.

H. lithophilus, Germ. (*Elmis*), Ins. Spec. Nov. 88; Lec. Proc. Acad., loc. cit.

This species is too well known to need comment. It may be readily known by the dense and evenly distributed sericeous coating with a slightly bronzed lustre. The legs are more glabrous than on other species and, as in all those which follow, the last abdominal segment is almost entirely deprived of its pubescence and is reddish in color. The profile of the elytra from the scutellum to apex is a regular curve. Length .20 inch; 5 mm.

* The pubescence is variable in its quality and distribution. That along the suture, being finer, is frequently rubbed off, either by the motions of the insect when alive or by friction against others in transportation. In one species there is a basal thoracic and a sutural space of the elytra normally devoid of pubescence.

Specimens in my cabinet are from Pennsylvania, Iowa and Canada West, the latter through the kindness of Mr. Johnson Pettit.

H. fastigiatus, Say (*Parnus*), Long's Exped. II, 275; *basalis* Lec., Proc. Ac. loc. cit.

The basal region of the prothorax is rather suddenly depressed, smooth, shining and entirely without pubescence. The sides of the elytra are densely pubescent while a sutural space is quite smooth and with but few hairs. This space is broader at the base, gradually narrowing to the middle of the elytra, then widening, and forming an oval space not reaching the tip. All the numerous specimens before me exhibit this, and, in confirmation of the fact that the absence of hairs is here not accidental, there are very few punctures and the surface is quite shining. The last abdominal segment is as in the preceding species but less ferruginous. Length .20—.22 inch; 5—5.5 mm.

Occurs from Canada to the District of Columbia and Illinois.

H. striatus, Lec. Proc. Acad. 1852, 43; *foveatus* Lec. loc. cit.

The latter species does not appear to have any definite character by which it can be separated. The unique specimen on which it is founded has not the alternation of the interspaces as well defined, and is, moreover, slightly more elongate. But I am persuaded to overlook these variations from the fact of still greater deviation occurring in *productus*, with, however, intermediate forms uniting them. Specimens have been sent me by Mr. Jas. Behrens from the neighborhood of San Francisco, which cannot be separated from the true type. This species may be known by the alternate interspace being more elevated. Length .22—.24 inch; 5.5—6 mm.

Not abundant in the Eastern States and Canada, but greater numbers prevail in the Western States. The California specimens have been received in abundance, and, judging from my experience in collecting *productus*, when found occur in countless numbers. I have seen several hundred on a stone not more than four inches square.

H. suturalis. Lec. Proc. Acad. loc. cit.; *gilensis* Lec. loc cit.; *æqualis* Lec. Proc. Acad. 1854, p. 81.

These three species were founded on unique specimens from widely separated regions. Collections made by myself and others in California and Arizona demonstrate the fact that these should all be united, as a perfect series, including the types, can now be formed. The sutural elytral space in specimens devoid of incrustation, has the hairs rather more sparsely placed and paler in color; the form of the space being similar to that described in *fastigiatus*. The thorax is, however,

regularly convex and pubescent. The last abdominal segment deprived of hair and more or less ferruginous. In all the specimens before me there is a subtriangular space near the middle of the anterior thoracic margin, smoother and less pubescent. In an examination of the typical specimens, *æqualis* and *gilensis* are exactly similar in form, the latter being coated somewhat with earthy matter while the former is clean. The type of *suturalis* is in rather bad condition, being densely coated; is broader in form than the others but resembling the female specimens collected in California, and which without doubt are referable to *æqualis*. Length .20 inch; 5 min.

Occurs with *productus* but extends further east than specimens of the latter have been found.

Sub-Family ELMIDÆ.

The anterior coxæ are rounded and without trochantin. The antennæ are slender but slightly thickened at tip. The hind coxæ are more widely separated than in the preceding sub-family, and the legs longer and more slender. The genera and species are more numerous and, with the exception of *Elmis* and *Ancyronyx*, have representatives on the Pacific Slope.

The genera represented in our fanna may be thus distinguished;

Head protected beneath by a prosternal lobe.
Antennæ 11 jointed.
Anterior tibiæ pubescent internally.....**Elmis.**
Anterior tibiæ glabrous internally.....**Stenelmis.**
Antennæ 6-jointed.....**Macronychus.**
Head free; posternum not lobed; anterior tibiæ glabrous internally.
Antennæ 11-jointed.....**Ancyronyx.**

In the above genera are comprised all the species in our fauna. *Limnius* has been united with *Elmis* as not being sufficiently distinct, none of the special characters assigned to it having that degree of permanence entitling them to generic value. The line between a rounded and elongate oval scutellum is not sufficiently distinct, as has already been shown by Dr. Leconte (*Proc. Acad.* 1866, 380). The degree of sinuation of the basal line of the thorax is equally valueless with the general form; the "tout ensemble" is also a faulty guide, as *Elmis*, both in Europe and America, appears rather heterogeneous in the aspect of the different species. The first two genera have rather numerous species, the third but two, one of them being Californian, while the one species of *Ancyronyx* still remains without a congener.

ELMIS, Latr.

Elmis, Latr. Hist. Nat. cl. Fourm, 1802, p. 396.
Limnius, Müller, Illig. Mag. V, 1806, p. 188.

Our species are as follows:—

Thorax with even surface; no elevated lines:
- Thorax luteous or slightly ferruginous; scarcely broader than long.....**vittatus.**
- Thorax luteous, apical and basal margins blackish; broader than long.....**bivittatus.**
- Thorax black, slightly bronzed, scarcely broader than long.**quadrinotatus.**

Thorax with a distinct lateral elevated line:
- Line extending from base to middle only; elytra without elevated lines.
 - Elytra with two oblique vittæ.....**elegans.**
 - Elytra with one oblique vitta..... **fastiditus.** / **ovalis.**
 - Elytra with a humeral and sub-apical rounded spot.....**quadrimaculatus.**
- Line entire, extending from base to apex:
 - Elytra smooth, shining, with lateral elevated lines:
 - Disc of thorax with transverse impresssion.....**glaber.**
 - Disc of thorax smooth..... **nitidulus.** / **latiusculus.**
 - Elytra opaque:
 - Without lateral elevated lines.....**moestus.**
 - With lateral elevated lines.....**abnormis.**

Thorax with surface obliquely plicate:
- Sides of thorax sinuate..... **pusillus.** / **similis.**
- Sides of thorax rounded from base to apex.....**ferrugineus.**

E. vittatus, Mels. Proc. Acad. 1844, p. 99; Lec. Proc. Acad. 1854, 217.

Length .12 inch; 3 mm.

Middle States.

E. bivittatus, Lec. Proc. Acad. 1852, p. 44.

Length .14 inch; 3.5 mm.

Collected in the upper Mississippi River.

E. quadrinotatus, Say, Journ. Acad. V, 187; Lec. Proc. Acad. 1852, p. 44.

Length .09 inch; 2.25 mm.

Middle States and Canada, also Fort Wingate, N. M.

These three species are closely allied and are difficult to distinguish in description. All agree in a similarity of coloration, an elongate form and, consequently, a more decidedly elongate scutellum. They have also the prosternal lobe much less prominent than in the species which follow, the parts of the mouth are less concealed beneath, the head more prominent and the front less deflexed. They differ as follows; *bivittatus* is the larger form, its thorax is decidedly (at least one-third) broader than long, more convex and with the apical and basal margins and also the sides blackish; the sides are rounded and near

the hind angles slightly sinuate. The elytra may be described as black with a yellow or luteous oblique stripe, widest at base, extending from the humeri to the apices of the elytra. *Vittatus* has the thorax gradually narrower from base to apex, feebly rounded on the sides and less convex than in the preceding species, and much less broad proportionately. The oblique stripe of the elytra does not attain the apex. The thorax is colored similarly to *bivittatus*, but the apical and basal regions are not as distinctly blackened. *Quadrinotatus* is the smallest and most slender species. The thorax is similar in shape to *bivittatus* but entirely bronzed. The punctures of the elytra are proportionately coarser. The oblique stripe is occasionally entire but not attaining the apex, usually interrupted at middle, forming a humeral spot and a stripe in the posterior third of the elytra.

E. elegans, Lec. (*Limnius*) Proc. Acad. 1852, p. 43.

With this species commences a group having an elevated line extending from the basal line of the thorax to near the middle. *Elegans* may be easily distinguished from any other of the group by its rather more slender form and by its elytral ornamentation; the elytra are black, slightly bronzed, with an oblique luteous band, starting at the humerus, extending inward to the second interspace and along this interspace to about the middle of the elytra; another oblique band starts from near the middle of the lateral margin, runs inward toward the apex without attaining it. Length .11—.12 inch; 3 mm.

Occurs in Vermont.

E. fastiditus, Lec. (*Limnius*) Agass. Lake Superior, 217; Proc. Acad. 1852, 43.

The sides of the thorax gradually converge and are scarcely rounded. The form is more elongate and less convex than in *ovalis*, and the elytral interspace more distinctly punctured. Color bronzed black, with an entire oblique luteous stripe extending from the humerus nearly to the apex. The suture is also luteous in many specimens. The legs are black. Length .11 inch; 4 mm.

Occurs in the Lake Superior region.

E. ovalis, Lec. (*Limnius*) New Species, 1863, p. 74.

Similar in outline to the preceding but slightly broader, more convex and shining and with the elytral interspaces scarcely punctured. The sides of the thorax are distinctly rounded and the disc more convex. The oblique stripe seen in *fastiditus* is not entire in this species, always interrupted at middle and much darker in color. Legs black. It is similar in length to *fastiditus*.

Occurs in South Eastern Pennsylvania.

E. quadrimaculatus, n. sp.—Elongate oval, black, not bronzed, shining; thorax broader than long, sides very feebly rounded, gradually converging to apex, disc very sparsely punctured. Elytra oval, sides feebly rounded, above moderately convex, with distinct striæ of rather large punctures becoming smaller towards the apex, interstices scarcely punctured; a large humeral (red when living) luteous spot, another more elongate near the apex of each elytra. Legs luteous. Length .08 inch; 2 mm.

Besides the groove limited on the outer side by a slight carina seen in the other species of the group, this has a slight rounded impression on each side of the scutellar region of the base of the thorax. It may be known from the two preceding species by its more elongate form, deeply punctured elytral striæ, and very feebly punctured thorax. The two spots on each elytron never tend to the formation of a stripe.

In the waters near Fort Crook, California.

E. glaber, n. sp.—Elongate oval, rather robust, black, feebly shining. Thorax slightly broader than long, sides feebly sinuate in front, rounded at middle and slightly narrower at base, disc with two entire lines extending from base to apex and a transverse impression at middle between the the two lines; space between the elevated lines smoother and less punctured, sides more opaque and more coarsely punctured. Elytra oval, sides feebly rounded with striæ of moderately large punctures, less distinct at apex, interstices flat, feebly punctured; fifth interspace carinate for a short distance, seventh carinate from humerus to near the apex. Legs and antennæ brownish. Length .08 inch; 2 mm.

The space between the fifth elytral interspace and the margin is more distinctly punctured and opaque than the middle of the elytra. The humeri have a faintly paler appearance. The species may be easily recognized by the entire lateral thoracic carina, the transverse impression, and the two lateral elytral carinæ.

San Pedro River, Arizona. One specimen only taken.

E. nitidulus, Lec. Proc. Acad. 1866, p. 380.

Length .05 inch; 1.25 mm.

New York.

E. latiusculus, Lec., loc. cit.

Length .06 inch; 1.5 mm.

Mountains of Pennsylvania.

The descriptions of Dr. LeConte are so recent and explicit that it is not deemed necessary to repeat them here.

E. moestus. n. sp.—Elongate sub-parallel, brownish, opaque. Thorax subquadrate, very slightly broader behind, sides moderately rounded and very slightly sinate near the hind angles; disc convex with two lateral elevated lines, surface opaque and granulate. Elytra elongate, subparallel, moderately convex, sinuate at apex; surface distinctly striate, striæ with rather large distant feebly impressed punctures, interstices flat, granulately rugose. Under surface granulate, last abdominal segment broadly transversely impressed·

Middle tibiæ with a slight brush of erect hairs at the upper third. Length .16 inch; 4 mm.

The elytra are slightly sinuate near the apex; the marginal ridge does not attain the tip, and the apices appear as if slightly prolonged. There is also a short scutellar stria here present not evident in the other species. The characters above given with those in the table will enable the species to be readily recognized.

One specimen from the San Pedro River, Arizona.

E. abnormis, n. sp.--Elongate, sub-parallel, brownish, opaque. Thorax slightly longer than broad, moderately convex, densely punctured, a lateral carina and a median longitudinal impression not reaching the apex nor extending beyond three-fourths the length of the thorax; sides moderately rounded at middle, feebly sinuate beyond. Elytra subparallel, slightly flattened on the disc, distinctly striate, striæ coarsely and olosely punctured. Third interspace carinate at base for one-third its length, fifth carinate for one-half the length of the third, sixth and (?) seventh carinate nearly their entire length, interspaces and carinæ finely granulate. Under surface sparsely granulate. Last abdominal segment with an acute incision on each side. Length .16 inch; 4 mm.

San Pedro River, Arizona; Peninsula of California. Coll. by Mr. Gabb.

This species may be recognized by the characters above given. It resembles greatly our species of *Stenelmis* in its general aspect, but the unmistakable line of pubescence on the anterior tibiæ indicates its generic place notwithstanding the fact that its appearance caused me, until the present, to place it with *Stenelmis* in my cabinet.

E. pusillus, Lec. (*Stenelmis*) Proc. Acad. 1852, 44; Zimm (*Limnius*) Trans. Am. Ent. Soc. 1869, p. 259.

Middle States and Canada.

E. similis, n. sp. Thorax slightly longer than broad, sides moderately rounded at middle, slightly sinuate in front, and near the hind angles. Disc with two broad, oblique folds converging backwards and joining a longitudinal median fold. Elytra sub-parallel, distinctly striate, striæ with coarse punctures, towards apex scarcely less distinct; near apex slightly sinuate as in *abnormis*. Second interval with a short carina, fourth interval carinate, extending three-fourths, sixth carinate, extending from humeri nearly to apex. Length .08 inch; 2 mm.

This species and *pusillus*, Lec., are so closely allied as to be with difficulty separated. In *similis* the punctures are more evident at apex of elytra, the carinate intervals more acute, the thorax more sinuate in front. In *pusillus* there is a distinct humeral and sub-apical paler spot, in this species the elytra are of a uniform brownish black color. Both species have a similar formation of the elytral apex as in *abnormis*, and the last abdominal segment has a similar incisure on each side. *Pusillus* and *similis* are similar in size.

Occurs in the San Pedro River, Arizona.

E. ferrugineus, n. sp.—Elongate, sub-parallel, opaque, ferruginous. Head black, thorax broader than long, moderately convex, coarsely but not densely punctured; a lateral carina on each side and a short, longitudinal impression at middle of disc; sides moderately rounded, feebly sinuate near the hind angles. Elytra subparallel, moderately convex, with striæ of moderately large punctures not attaining the tip, intervals flat, the third, fifth and seventh carinate, the third very short, the fifth extending nearly three-fourths, the seventh nearly attaining the apex. Apex of elytra as in the two preceding species. Abdomen coarsely punctured, last segment as in *similis*. Length .10 inch; 2.5 mm.

Collected by Mr. Belfrage, Texas.

Easily known by the characters given. The thorax is almost a perfect reproduction in miniature of that of *moestus*, except that it is finely crenulate or almost serrate.

STENELMIS, Dufour.

Stenelmis, Dufour, Ann. Sc. Nat. Ser. II, 1835, Zool. p. 158.

S. linearis, Zimm. Trans. Am. Ent. Soc. Phil. 1869, 259.

Our smallest species, easily known by the luteous elytral vitta and the total absence of any elevation of the second elytral interval at base. The carina of the fifth interval is feebly marked at humerus. The sides of the thorax are nearly straight or at least feebly sinuate, the hind angles acute but not prominent, the discal channel rather deep and smooth at bottom; on each side a short lateral carina within which is a smooth space. Length .10 inch; 2.5 mm.

South Carolina, collected by Dr. Zimmerman.

This may be the species described by Motschulsky (*Etudes* 1859, p. 50), under the name *humerosus*, and, if so, the latter should have priority. The description of this and others is so vague as to leave considerable doubt of their identity.

S. sinuatus, Lec. Proc. Acad. 1852, p. 44.

The front angles of the thorax are more prominent. The sides in front are nearly straight at the anterior third and slightly converge backwards, then slightly rounded and feebly sinuate near the hind angles. The second elytral interval is carinate at base. A very faint humeral and sub-apical paler spot is seen. Length .14 inch; 3.5 mm.

One specimen, Tolula, Georgia.

S. crenatus, Say (*Elmis*) Long's Exped. II, 275; Lec. Proc. Acad. 1852, 44.

Our common eastern species, easily known by its broader thorax with more strongly rounded sides. The disc is channelled and on each side three obtuse tubercles. The entire surface is opaque, and

its general aspect more depressed than any other of our species.

Length .14 inch; 3.5 mm.

Abundant in the waters of Pennsylvania.

S. bicarinatus, Lec. Proc. Acad. 1852, 44.

Form elongate, elytra distinctly wider behind the middle. Thorax parallel in front, then slightly rounded, becoming wider, then parallel to base; hind angles rectangular; dorsal channel and an oblique groove on each side distinct. Second interval distinctly but feebly carinate at base, lateral carina not prominent; disc of elytra moderately convex, with distinct striæ, which are deeply punctured at base, becoming gradually more faint towards apex. The luteous stripe is distinct but not pale. Length .14—.16 inch; 3.5—4 mm.

Occurs in Ohio.

S. quadrimaculatus, n. sp.

Similar in form to *crenatus* but differing as follows:—Thorax more elongate, sides less rounded. Elytra more convex in both directions; second interval with a short basal carina, lateral carina very feeble; disc with striæ of very large deep punctures, less strong at apex but not evanescent. Humeri with a rounded red spot and a short sub-apical stripe. Legs black, apex and base of tibiæ, tarsi, and antennæ ferruginous. Length .14 inch; 3.5 mm.

At the middle of the base of the thorax on each side of the scutellum are two small, smooth, puncture like spots, these are seen also in the next species. The lateral tubercles of the thorax between the dorsal channel and the margin are here very distinct, and in the space enclosed between them and the channel is a rather deep impression. In form this is the most robust of our species and, with the exception of *linearis*, has the lateral carina of the elytra least distinct.

One specimen. Vermont.

S. vittipennis, Zimm. Trans. Am. Ent. Soc. 1869, 259.

Resembles *bicarinatus* but is less convex. The thorax is similar but the hinder two-thirds are rounded in place of being parallel, the hind angles are consequently less rectangular. The oblique groove described in *bicarinatus* is also quite evident here. In some specimens the stripes are quite dark, and scarcely evident, in others bright adding to the beauty of the insect. With the exception of *linearis* is our most elongate species. Length .14 inch; 3.5 mm.

Illinois, South Carolina and Texas.

MACRONYCHUS, Müller.

Macronychus, Müller, Illig. Mag. V, 1806, p. 207.

M. glabratus, Say, Journ. Acad. V. p. 187; Lec. Pr. Ac. 1852, 44; *lateralis* Mels. Proc. Acad. 1844, p. 99; Lec. Proc. Acad. 1854, p. 217. (The last reference being the correction of the synonymy.)

This species has a thorax longer than wide, convex, glabrous, scarcely punctured and feebly pubescent. The sides in front are nearly straight, gradually diverging from the front angles, then feebly rounded and slightly sinuate near the hind angles. The elytra are glabrous, somewhat broader behind the middle, striate with moderate punctures at base, becoming fainter and almost impunctured at apex, interspaces moderately convex at base especially the second and fourth, seventh strongly carinate, extending three-fourths the length of the elytra. The space between the carina and the margin of the elytra is densely pubescent with sericeous yellow hairs. Legs elongate. Length .14 inch; 3.5 mm.

Occurs in Pennsylvania.

M. parvulus, n. sp.—Elongate, subparallel, black, shining. Head coarsely punctured and pubescent; thorax sub-quadrate, convex, with a slight median impression and a lateral carina, sides rounded feebly from base to apex. Elytra elongate, subparallel, moderately convex, with striæ of large punctures becoming smaller towards the apex; interspaces moderately convex, fourth, sixth and seventh carinate and crenulate on top, the first two nearly attaining the apex of the elytra which is finely serrate. Legs moderate, not long. Length .10 inch; 2.5 mm.

A curious little species resembling, at first sight, an *Elmis* near *ferrugineus*. Easily recognizable by the generic characters. From *glabratus* it may be known by its smaller size, less convexity, more strongly punctured striæ, and by the two nearly entire lateral carinæ of the elytra. The thorax is also shorter and regularly rounded, although feebly, from base to apex. The base of thorax is slightly broader than the apex. The elytra are much less convex and have not the lateral sericeous space. The legs are usually brownish.

Occurs at Fort Tejon, California.

ANCYRONYX, Erichs.

Ancyronyx, Erichs, Ins. Deutsch. III, 1847, p. 522.

A. variegatus, Germ. (*Macronychus*) Ins. Nov. 89; Sturm Cat, II, 63, pl. 2, fig. 12; *cinctus* Say (*Elmis*) Journ. Acad. V. 186.

This insect is easily known by the generic characters given in the table. The legs are long, slender and spider-like. The head prominent, and not protected beneath by a prosternal lobe. Color of body black, thorax with an apical and basal yellow margin, elytra with a

yellow oblique stripe extending from the humerus to the middle of the elytra near the suture then curved and extending nearly directly outwards toward the margin; another short, longitudinal stripe near the suture at apex. Tarsi and under side of femora black, tibiæ and upper edge of femora luteous. Length .12—14 inch; 3—3.5 mm.

Specimens are from Vermont, Middle States and Tennessee.

The following are unknown to me:—

Stenelmis elongatus, Motsch. Etudes. 1859, p. 51.
Stenelmis humerosus, Motsch. idem. p. 50.
Stenelmis sordidus, Motsch. idem. p. 51.

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Notes on some Genera of COPROPHAGOUS SCARABÆIDÆ of the United States.

BY GEO. H. HORN, M. D.

COPRIS, Geoff.

Our species are but few in number and seem hardly to call for a separate essay, but as several of them are closely allied and their descriptions widely separated, the present paper may be of advantage to many.

Two sub-genera are indicated in our fauna.

PINOTUS, Erichs, (Archiv. 1847, I. p. 109).—Each elytron 7-striate; hind tibiæ dilated at apex, outer edge crenulate, never with an oblique ridge or tooth, spur obtuse or emarginate at apex; front parabolic, genæ in front of eye oblique, angle obtuse.

This subgenus is identical with Haldeman's *Brachycopris*.

COPRIS, Auct.—Each elytron 8-striate: hind tibiæ compressed, outer edge with an oblique ridge or tooth near the middle, spur long acute; front semicircular, genæ rectangularly produced, angle acute.

C. (**Pinotus**) **carolinus**, Linn. (*Scarabaeus*) Syst. Nat. I. 2, p. 545; Drury, Exot. Col. I, p. 77, pl. 35, fig. 2; Hald. (*Brachycopris*) Proc. Acad. III, 125.

Our largest species. This species may be further distinguished from those of the next subgenus by the presence of a moderately deep excavation on the underside of the prothorax within the anterior angle, for the lodgment of the antennal club in repose; also, by the absence of any elevated line proceeding from the coxæ outwards. Length .80—1.10 inch; 20—28 mm.

Abundant Southwardly and Westwardly of Pennsylvania.

Our remaining species belong to the subgenus *Copris*.

Thorax opaque, densely, coarsely and evenly punctured.....**anaglypticus**, Say.